

Sept 28, 2001

PATENT
YO996-184 IBM-219#10/Response
3/14/03
C.PiIN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	D.Y. Shih, et al.	
Serial Number	:	09/254,769	FAX RECEIVED
Filing Date	:	March 11, 1999	MAR 13 2003
Examiner	:	V. Nguyen	TECHNOLOGY CENTER 2800
Group Art Unit	:	2858	
For	:	WAFER SCALE HIGH DENSITY PROBE ASSEMBLY, APPARATUS FOR USE THEREOF AND METHODS OF FABRICATION THEREOF	

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

In response to the Official Action dated September 20, 2001, please consider the following remarks as follows:

The Examiner has contended in the above-identified Official Action that Applicants have not addressed the issues of claims 26, 28, 31-32, 34, 36, 40-45 and 52-60 with respect to 35 U.S.C. §112, second paragraph. In the prior response, Applicants attempted to clarify the language used to define the invention. Applicants submitted a more detailed explanation of the invention by including the following paragraph to explain the invention. The paragraph reads:

- Figure 6a depicts an alternate embodiment of Figure 6. Sheet 20 comprises two distinct layers 20a, a dielectric material, e.g. a polymer such as polyimide and 20b which is an electrically conducting layer of metal. This composite sheet 20a and 20b in Figure 6a has a plurality (not shown) of openings 21 (holes) therethrough of the type depicted. Ball 16 is insulated from contacting the metallic sheet 20b by the dielectric material extending into opening 21. --

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The present invention relates to a method for making an interconnector to couple an electric module to a circuit board. The invention provides a probe structure that is an integral part of the fan out wiring on the test substrate or other printed wiring means to minimize the electrical conductor length as well as contact resistance of the probe interface. The probe is provided with a compliant interface to compensate for slight variations in the rigid bond pad heights on the IC device and variations in the height of the probe contacts.

In Claim 26, the elements for holding said structural substrate means for retractable moving of said structure of Claim 1 toward and away from said ^{NS} electronic device and means for applying the electronic signal applied through the substrate is depicted in Figure 1 wherein the electrical signal is supplied through substrate 11 through pad 13, ball, wires 15 to second end 16 ball contact. Ball contact 16 contacts the electronic device 30.

In Claim 28, the dielectric material referred to therein, as well as claim 12 and other claims where the term is mentioned, is an insulating material and is depicted in Figure 6 as element 22. Figure 6a, newly included in the prior response, depicts an alternate embodiment of Figure 6 and is defined in Claim 12. Sheet 20 comprises two distinct layers 20a, a dielectric material, e.g. a polymer such as polyimide and 20b which is an electrically conducting layer of metal. This composite sheet 20a and 20b in Figure 6a has a plurality (not shown) of openings 21 (holes) therethrough of the type depicted. Ball 16 is insulated from contacting the metallic sheet 20b by the dielectric material extending into opening 21. There was no new matter added by virtue of the addition of the drawing and language to the specification since the antecedent basis for the insertion is found in Claim 12 as originally filed.

Further, in Claim 28, the nature of the dielectric material is an insulating material and is exemplified in Figure 15 wherein element 120 is the dielectric material.

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The "means for permitting each of said second ends to move about reference positions" is explained in the specification on pages 12-13 referring to the elements depicted in Figure 8.

The "means" for permitting the second ends to move are a combination of the perforations 24 which define cantilevered sections 23. These cantilevered flaps are secured to the sheet and thus are flexible and can move along a horizontal-vertical axis (the "reference position")

The "sheet" of material referred to in claim 31, for example is element 20 in Figure 1. The perforations are described above and are depicted in Figure 8 which is a top view as element 23.

Claim 32 covers a dielectric sheet of rigid material which is shown in Figure 1 as element 20 and has 2 layers.

As noted above, the "perforations" referred to in the claims are depicted in Figure 8 as element(s) 23.

The sheet for the connecting device is an alignment fixture so as to provide consistent pressure between the contacts of a module being interconnected, the interconnecting device and a connecting article. This feature is shown in Figure 1, element 23. An elastomer is found in Figure 7 and is denoted element 17.

With respect to Claims 38, 39 and 45, the reference to "Invar" refers to a material which is a sheet of alloy containing 63.8% iron, 36% nickel and 0.2% carbon. It is a material having a low coefficient of expansion and is well known in the art. The polymeric material referred to in the above-noted Claims where the term "polymer" is used is a polypyromellitimide made by DuPont bearing the trademark "KAPTON."

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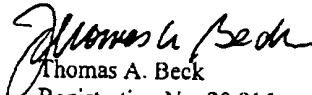
The Examiner has specified elements in Claims 46 - 60 that he does not understand. These same elements that he questions are found in a number of the claims. The meaning of the terms defining these elements is the same regardless of the claim number. The identical elements described above found in Claims 1 - 26 have the same meaning as those terms found in Claims 27 - 60. Applicants provided the definition of terms and the reference to same in the drawings in the prior response as to the definition of the elements, but did not apply the definitions supplied to each and every use of that same term in each claim.

The attention of the Examiner is directed to the specification, pages 10 - 15 which in the course of discussing the Figures, details the elements found in the present invention and covered in the claims.

Applicants' attorney in the prior response attempted to revise the claims so that they clearly distinguish over the references cited. If the Examiner believes that there are other modifications to be made to the other claims which would result in their allowability, Applicants' attorney would be willing to discuss the matter with the Examiner by telephone at a mutually convenient time.

In view of the arguments and modifications to the claims, allowance of this case is warranted. Such favorable action is respectfully solicited.

Respectfully Submitted,


Thomas A. Beck

Registration No. 20,816
26 Rockledge Lane
New Milford, CT 06776
Telephone (860) 354 - 0892

I hereby certify that this paper is being deposited on the date indicated below with the U.S. Postal Service as First Class Mail addressed to Commissioner of Patents & Trademarks, Washington, D.C. 20231

Signature:  Date: October 15, 2001
Name: Thomas A. Beck

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